STATUS

LAND SCIENCE SOFTWARE TRANSFER GROUP (SSTG)

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MODIS SDST

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Presentation Overview

- Lessons from Beta and Goals/Requirements for V1
- Development of V1 File Specs.
- Metadata and Ancillary Data
- Software Tools (e.g. M-API)
- V1 Delivery Info.
- Improving Communications
- Milestones and Schedules

Major Lessons - Beta

- The method used to read HDF files, such as the L1B product, had a significant impact on code performance.
- Templates or wrappers for SDP tools and L1B reading saved time and improved code maintenance.
- The SCFs need access to more information on the DAAC production environment to assist in developing code.
- Tighter CM is needed for product specs., data, and software.
- Volumes/Loads are a major concern and need to be closely monitored.
- Due to the number of product inter-dependencies, more up-front design of the HDF product specs. would smooth I&T.

V1 Goals [G] and Requirements [R]

- REFERENCE: V1 Requirements Specification (SDST-028).
- Develop HDF product specs. with both core (ECS and MODIS) and product-specific metadata, QA flags if defined. [R]
- Devlop selected products in the EOSDIS swath structure. [G]
- Produce products consistent with the science defined in the updated ATBDs. [R]
- Read ancillary data [R] in at-launch format. [G]
- Develop and implement MODIS production rules. [R]
- Develop code which runs with SDP TK Ver. 6, and either M-API (Ver. 2.0) or HDF (Ver. 4.0). [R]

V1 Goals and Requirements, cont.

- Optimize code performance to reduce resource requirements. [G]
- Provide complete end-to-end integration, reflecting at-launch dependencies. [R]
- Define requirements for V2 tools and utilities as early as possible. [G]

V1 HDF Product Specifications

- Include both ECS and MODIS metadata.
- Placed under CM and baselined early in V1, late changes strongly discouraged.
- Include QA flags.
- Seeking common look using SDST-provided templates.
- Available on MODIS ftp site.

V1 Metadata Approach

- GOAL: To organize a consistent and meaningful use of metadata across all MODIS products.

  - unique names for all unique metadata objects.

  - singular names for metadata objects used by multiple products.

  - meaningful metadata names.

MODIS V1 METADATA ORGANIZATION

Implementation-derived metadata classes

E -
(ECS/SDP TK)

M -
(NATIVE HDF/M-API)

E-PRODUCT-S	Specified by Science Team	**M-PRODUCT**
	Specified by SDST with ST input	
E-PRODUCT	Common to all products	**M-COMMON**
E-PRODUCT-A	Common to all L1,L2 products	**M-COMMON-A**
E-PRODUCT-B	Common to all L2G,L3,L4 products	**M-COMMON-B**

E-CORE (MANDATED BY ECS)

Metadata Dictionary

- Maintained by SDST in HTML format, soon to be added to WWW.
- Dictionary entry format closely matches that required by the ECS metadata dictonary.
- For future code development:

  - consult dictionary prior to coding metadata attributes for correct syntax.

  - Email fisher@ltpmail.gsfc.nasa.gov if a needed metadata item is not included in the dictionary. Include as much info. as possible, per the dictionary entry formats.

  - Dictionary will be baselined soon after V1 HDF file specs. are complete.

DAO Data Access Options

- Non-HDF binary form on anon. ftp from DAO or GSFC DAAC - 8-year time series or 5-year monthly means. Readable with GrADS software (also includes visualization tools).
- HDF form (pseudo-EOS-HDF) available on MODIS ftp site - selected samples only. Readable with newest version of Grid Analysis and Display System (GrADS) software, supported on all SCF platforms.
- True EOS-HDF form accessible with SDP TK6 through EOS-HDF API (due May). Data along MODIS swaths due in June.

NMC Data Access Options

- ECS developing NMC GRIB to EOS-HDF converters building on SeaWiFS-developed software (due with SDP TK6).
- For pre-May deliveries, use HDF samples and interpolation schemes provided by MODIS Oceans/ SeaWiFS.
- Additional NMC data in this format available from GSFC DAAC.

Ancillary Data Resources

- DAO's GrADS Web page: http://dao.gsfc.nasa.gov/data_stuff/formatPages/grads.html
- GrADS main Web page: http://grads.iges.org/grads/head.html
- DAO Web page: http://dao.gsfc.nasa.gov/
- GSFC DAAC home page: http://daac.gsfc.nasa.gov/
- DAO monthly mean data (5 years): ftp://dao.gsfc.nasa.gov/pub/assimilation/e0054A/data/monthly_means
- DAO time series (8 years): ftp://daac.gsfc.nasa.gov/data/dao_data/assim_daily
- MODIS ancillary data ftp site: ftp://ltpftp.gsfc.nasa.gov/pub/projects/modis/ancillary
- NMC gridded data document: http://spsosun.gsfc.nasa.gov/NOAA_NMC.html

Software Tools and Utilities

- L1B readers: C and FORTRAN versions being updated to reflect new L1B format.
- MODIS API (M-API):
  - Version 1.3 (available now):
    - Tables (Vdata) in C, to read L1B metadata.
    - File and object-level metadata.
  - Version 1.4 (due late Feb.):
    - Tables (Vdata) in FORTRAN, to read L1B metadata.
    - Standard naming for object names in mapi.h.
  - Version 2.0 (due spring 1996):
    - Vgroup support, to access EOSDIS swath structures.
    - Support for HDF 4.0.
    - ECS core metadata access, using SDP TK.
- Metadata I/O samples - in progress, to be posted to MODIS ftp site.
- Other SCF-developed tools - can be posted to MODIS ftp site.

V1 Delivery Requirements

- Complete README, packing list, make/build file.
- Sample output following product spec.
- Templates for all file not documented elsewhere.
- Final HDF product specs. (including metadata) produced with GSFC-enhanced Mosaic.
- Meets all ESDIS/MODIS standards specified in V1 Standards and Guidelines, incl. ANSI compliance, prologs.
- Uses ancillary data in at-launch format.
- Meets all requirements specified in V1 Requirements Specification.
- Uses SDP TK6, and either M-API 2.0 or HDF 4.0.
- Uses LUNs and SMF numbers within SDST-provided ranges.
- Uses standard product file naming convention agreed to by ST.

Information Resources

- MODIS Programmers' Web site:
  (http://modarch.gsfc.nasa.gov/programmers)
  - designed by SSTG/SDST, implemented by MAST.
  - links to SDST, ECS, and ESDIS documents and newletters.
  - links to other SCFs.
  - links to info. on metadata, ancillary data, performance optimization.
  - links to MODIS ftp site including HDF product specifications.
  - YOUR SUGGESTIONS WELCOME !!
- MODIS Software News
  - 1st edition was Dec. 1995.
  - to be issued periodically as needed by SDST.
  - focuses on current events and milestones.
- MODIS-PROG listserv (mailing list for developers)
  - to subscribe: "SUBSCRIBE MODIS-PROG (your name)" to listserv@listserv.gsfc.nasa.gov.

What SSTG Needs from the ST

- An estimated delivery date for your V1 code and product spec.
- A complete code delivery on the above date.
- Updates to Beta bubble (dependency) charts to reflect V1 code.
- Maintenance of a single version of the code (SDP TK, HDF, M-API installed at your SCF).
- A decision of who will perform the integration of SDP tools & M-API for V1.
- Frequent and regular communications with SSTG.
- Specification of remaining ancillary data and tool requirements.
- Description of tests performed (including inputs and outputs) in preparing the V1 code.
- Completed comment forms with any suggestions.

Handouts and Reference Material

- MODIS Standards & Guidelines - Version 1 edition
- V1 Requirements Specification
- Revised code turnaround process
- At-launch and Beta bubble diagrams
- HDF product specifications from Beta software
- MOD02 (L1B) and MOD35 (cloud mask) draft specs. (if ready)

MODLAND Comment Form

- Please provide any comments or suggestions for SDST. You can also use this form to state requirements for test, simulated, and ancillary data, software utilities, SDP Toolkit routines, enhancements to MODIS API, etc.